

SEQUENCE LISTING

<110> Holland, Pamela M
 Virca, Duke G
 Bird, Timothy A
 Garka, Kristen

<120> GID (GNK INTERACTING DECARBOXYLASE) AND METHODS OF USE

<130> 2499-1-001N

<140> UNASSIGNED

<141> 2001-10-16

<150> 60/241,324

<151> 2001-10-18

<160> 27

<170> PatentIn version 3.1

<210> 1

<211> 2367

<212> DNA

<213> Homo sapien

<400> 1

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<210> 2
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<212> PRT
<213> Homo sapien

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<400> 2

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Met Asp Ala Ser Leu Glu Lys Ile Ala Asp Pro Thr Leu Ala Glu Met
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Gly Lys Asn Leu Lys Glu Ala Val Lys Met Leu Glu Asp Ser Gln Arg
20      25      30

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Arg Thr Glu Glu Glu Asn Gly Lys Lys Leu Ile Ser Gly Asp Ile Pro
35      40      45

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```

Gly Pro Leu Gln Gly Ser Gly Gln Asp Met Val Ser Ile Leu Gln Leu
50      55      60

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```

Val Gln Asn Leu Met His Gly Asp Glu Asp Glu Glu Pro Gln Ser Pro
65      70      75      80

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Arg Ile Gln Asn Ile Gly Glu Gln Gly His Met Ala Leu Leu Gly His
85      90      95

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Ser Leu Gly Ala Tyr Ile Ser Thr Leu Asp Lys Glu Lys Leu Arg Lys
100      105      110

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Leu Thr Thr Arg Ile Leu Ser Asp Thr Thr Leu Trp Leu Cys Arg Ile
115      120      125

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Phe Arg Tyr Glu Asn Gly Cys Ala Tyr Phe His Glu Glu Glu Arg Glu
130      135      140

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Gly Leu Ala Lys Ile Cys Arg Leu Ala Ile His Ser Arg Tyr Glu Asp
145 150 155 160

Phe Val Val Asp Gly Phe Asn Val Leu Tyr Asn Lys Lys Pro Val Ile
165 170 175

Tyr Leu Ser Ala Ala Ala Arg Pro Gly Leu Gly Gln Tyr Leu Cys Asn
180 185 190

Gln Leu Gly Leu Pro Phe Pro Cys Leu Cys Arg Val Pro Cys Asn Thr
195 200 205

Val Phe Gly Ser Gln His Gln Met Asp Val Ala Phe Leu Glu Lys Leu
210 215 220

Ile Lys Asp Asp Ile Glu Arg Gly Arg Leu Pro Leu Leu Leu Val Ala
225 230 235 240

Asn Ala Gly Thr Ala Ala Val Gly His Thr Asp Lys Ile Gly Arg Leu
245 250 255

Lys Glu Leu Cys Glu Gln Tyr Gly Ile Trp Leu His Val Glu Gly Val
260 265 270

Asn Leu Ala Thr Leu Ala Leu Gly Tyr Val Ser Ser Ser Val Leu Ala
275 280 285

Ala Ala Lys Cys Asp Ser Met Thr Met Thr Pro Gly Pro Trp Leu Gly
290 295 300

Leu Pro Ala Val Pro Ala Val Thr Leu Tyr Lys His Asp Asp Pro Ala
305 310 315 320

Leu Thr Leu Val Ala Gly Leu Thr Ser Asn Lys Pro Thr Asp Lys Leu
325 330 335

Arg Ala Leu Pro Leu Trp Leu Ser Leu Gln Tyr Leu Gly Leu Asp Gly
340 345 350

Phe Val Glu Arg Ile Lys His Ala Cys Gln Leu Ser Gln Arg Leu Gln
355 360 365

Glu Ser Leu Lys Lys Val Asn Tyr Ile Lys Ile Leu Val Glu Asp Glu
370 375 380

Leu Ser Ser Pro Val Val Val Phe Arg Phe Phe Gln Glu Leu Pro Gly
385 390 395 400

Ser Asp Pro Val Phe Lys Ala Val Pro Val Pro Asn Met Thr Pro Ser
405 410 415

Gly Val Gly Arg Glu Arg His Ser Cys Asp Ala Leu Asn Arg Trp Leu
420 425 430

Gly Glu Gln Leu Lys Gln Leu Val Pro Ala Ser Gly Leu Thr Val Met
435 440 445

Asp Leu Glu Ala Glu Gly Thr Cys Leu Arg Phe Ser Pro Leu Met Thr
 450 455 460

Ala Ala Val Leu Gly Thr Arg Gly Glu Asp Val Asp Gln Leu Val Ala
 465 470 475 480

Cys Ile Glu Ser Lys Leu Pro Val Leu Cys Cys Thr Leu Gln Leu Arg
 485 490 495

Glu Glu Phe Lys Gln Glu Val Glu Ala Thr Ala Gly Leu Leu Tyr Val
 500 505 510

Asp Asp Pro Asn Trp Ser Gly Ile Gly Val Val Arg Tyr Glu His Ala
 515 520 525

Asn Asp Asp Lys Ser Ser Leu Lys Ser Asp Pro Glu Gly Glu Asn Ile
 530 535 540

His Ala Gly Leu Leu Lys Lys Leu Asn Glu Leu Glu Ser Asp Leu Thr
 545 550 555 560

Phe Lys Ile Gly Pro Glu Tyr Lys Ser Met Lys Ser Cys Leu Tyr Val
 565 570 575

Gly Met Ala Ser Asp Asn Val Asp Ala Ala Glu Leu Val Glu Thr Ile
 580 585 590

Ala Ala Thr Ala Arg Glu Ile Glu Glu Asn Ser Arg Leu Leu Glu Asn
 595 600 605

Met Thr Glu Val Val Arg Lys Gly Ile Gln Glu Ala Gln Val Glu Leu
 610 615 620

Gln Lys Ala Ser Glu Glu Arg Leu Leu Glu Glu Gly Val Leu Arg Gln
 625 630 635 640

Ile Pro Val Val Gly Ser Val Leu Asn Trp Phe Ser Pro Val Gln Ala
 645 650 655

Leu Gln Lys Gly Arg Thr Phe Asn Leu Thr Ala Gly Ser Leu Glu Ser
 660 665 670

Thr Glu Pro Ile Tyr Val Tyr Lys Ala Gln Gly Ala Gly Val Thr Leu
 675 680 685

Pro Pro Thr Pro Ser Gly Ser Arg Thr Lys Gln Arg Leu Pro Gly Gln
 690 695 700

Lys Pro Phe Lys Arg Ser Leu Arg Gly Ser Asp Ala Leu Ser Glu Thr
 705 710 715 720

Ser Ser Val Ser His Ile Glu Asp Leu Glu Lys Val Glu Arg Leu Ser
 725 730 735

Ser Gly Pro Glu Gln Ile Thr Leu Glu Ala Ser Ser Thr Glu Gly His

740

745

750

Pro Gly Ala Pro Ser Pro Gln His Thr Asp Gln Thr Glu Ala Phe Gln
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Lys Gly Val Pro His Pro Glu Asp Asp His Ser Gln Val Glu Gly Pro
 770 775 780

Glu Ser Leu Arg
 785

<210> 3
 <211> 240
 <212> PRT
 <213> Periwinkle

<400> 3

Gly Lys Leu Val Cys Tyr Gly Ser Asp Gln Thr His Thr Met Phe Pro
 1 5 10 15

Lys Thr Cys Lys Leu Ala Gly Ile Tyr Pro Asn Asn Ile Arg Leu Ile
 20 25 30

Pro Thr Thr Val Glu Thr Asp Phe Gly Ile Ser Pro Gln Val Leu Arg
 35 40 45

Lys Met Val Glu Asp Asp Val Ala Ala Gly Tyr Val Pro Leu Phe Leu
 50 55 60

Cys Ala Thr Leu Gly Thr Thr Ser Thr Thr Ala Thr Asp Pro Val Asp
 65 70 75 80

Ser Leu Ser Glu Ile Ala Asn Glu Phe Gly Ile Trp Ile His Val Asp
 85 90 95

Ala Ala Tyr Ala Gly Ser Ala Cys Ile Cys Pro Glu Phe Arg His Tyr
 100 105 110

Leu Asp Gly Ile Glu Arg Val Asp Ser Leu Ser Leu Ser Pro His Lys
 115 120 125

Trp Leu Leu Ala Tyr Leu Asp Cys Thr Cys Leu Trp Val Lys Gln Pro
 130 135 140

His Leu Leu Leu Arg Ala Leu Thr Thr Asn Pro Glu Tyr Leu Lys Asn
 145 150 155 160

Lys Gln Ser Asp Leu Asp Lys Val Val Asp Phe Lys Asn Trp Gln Ile
 165 170 175

Ala Thr Gly Arg Lys Phe Arg Ser Leu Lys Leu Trp Leu Ile Leu Arg
 180 185 190

Ser Tyr Gly Val Val Asn Leu Gln Ser His Ile Arg Ser Asp Val Ala
 195 200 205

Met Gly Lys Met Phe Glu Glu Trp Val Arg Ser Asp Ser Arg Phe Glu

210

215

220

Ile Val Val Pro Arg Asn Phe Ser Leu Val Cys Phe Arg Leu Lys Pro
 225 230 235 240

<210> 4
 <211> 240
 <212> PRT
 <213> Camptotheca acuminata

<400> 4

His Lys Leu Val Val Tyr Gly Ser Asp Gln Thr His Ser Thr Tyr Ala
 1 5 10 15

Lys Ala Cys Asn Leu Ala Gly Ile Leu Pro Cys Asn Ile Arg Ser Ile
 20 25 30

Arg Thr Glu Ala Val Ala Asn Phe Ser Leu Ser Pro Asp Ser Leu His
 35 40 45

Arg Glu Ile Glu Ala Asp Val Ala Ala Gly Met Val Pro Leu Tyr Leu
 50 55 60

Cys Ala Thr Val Gly Thr Thr Ser Thr Thr Ala Ile Asp Ser Leu Ser
 65 70 75 80

Pro Leu Ala Asp Val Ala Asn Asp Tyr Gly Leu Trp Phe His Val Asp
 85 90 95

Ala Ala Tyr Ala Gly Ser Ala Cys Ile Cys Pro Glu Phe Arg His Tyr
 100 105 110

Leu Asp Gly Ile Glu Arg Ala Asp Ser Leu Ser Leu Ser Pro His Lys
 115 120 125

Trp Leu Leu Ser Tyr Leu Asp Cys Cys Cys Leu Trp Val Lys Arg Pro
 130 135 140

Ser Val Leu Val Lys Ala Leu Ser Thr Asp Pro Glu Tyr Leu Lys Asn
 145 150 155 160

Lys Pro Ser Glu Ser Asn Ser Val Val Asp Phe Lys Asp Trp Gln Val
 165 170 175

Gly Thr Gly Arg Arg Phe Lys Ala Leu Arg Leu Trp Phe Val Met Arg
 180 185 190

Ser Tyr Gly Val Ala Asn Leu Gln Ser His Ile Arg Ser Asp Ile Gln
 195 200 205

Met Ala Lys Met Phe Glu Glu Phe Val Asn Ser Asp Pro Arg Phe Glu
 210 215 220

Ile Val Val Pro Arg Val Phe Ser Leu Val Cys Phe Arg Leu Asn Pro
 225 230 235 240

<210> 5

<211> 240
 <212> PRT
 <213> Arabidopsis thaliana

<400> 5

Glu Lys Leu Val Val Tyr Ser Ser Asp Gln Thr His Ser Ala Leu Gln
 1 5 10 15

Lys Ala Cys Gln Ile Ala Gly Ile His Pro Glu Asn Cys Arg Val Leu
 20 25 30

Thr Thr Asp Ser Ser Thr Asn Tyr Ala Leu Arg Pro Glu Ser Leu Gln
 35 40 45

Glu Ala Val Ser Arg Asp Leu Glu Ala Gly Leu Ile Pro Phe Phe Leu
 50 55 60

Cys Ala Asn Val Gly Thr Thr Ser Ser Thr Ala Val Asp Pro Leu Ala
 65 70 75 80

Ala Leu Gly Lys Ile Ala Asn Ser Asn Gly Ile Trp Phe His Val Asp
 85 90 95

Ala Ala Tyr Ala Gly Ser Ala Cys Ile Cys Pro Glu Tyr Arg Gln Tyr
 100 105 110

Ile Asp Gly Val Glu Thr Ala Asp Ser Phe Asn Met Asn Ala His Lys
 115 120 125

Trp Phe Leu Thr Asn Phe Asp Cys Ser Leu Leu Trp Val Lys Asp Gln
 130 135 140

Asp Ser Leu Thr Leu Ala Leu Ser Thr Asn Pro Glu Phe Leu Lys Asn
 145 150 155 160

Lys Ala Ser Gln Ala Asn Leu Val Val Asp Tyr Lys Asp Trp Gln Ile
 165 170 175

Pro Leu Gly Arg Arg Phe Arg Ser Leu Lys Leu Trp Met Val Leu Arg
 180 185 190

Leu Tyr Gly Ser Glu Thr Leu Lys Ser Tyr Ile Arg Asn His Ile Lys
 195 200 205

Leu Ala Lys Glu Phe Glu Gln Leu Val Ser Gln Asp Pro Asn Phe Glu
 210 215 220

Ile Val Thr Pro Arg Ile Phe Ala Leu Val Cys Phe Arg Leu Val Pro
 225 230 235 240

<210> 6
 <211> 232
 <212> PRT
 <213> Homo sapien

<400> 6

Ala Arg Leu Val Ala Tyr Ala Ser Asp Gln Ala His Ser Ser Val Glu
 1 5 10 15

Lys Ala Gly Leu Ile Ser Leu Val Lys Met Lys Phe Leu Pro Val Asp
20 25 30

Asp Asn Phe Ser Leu Arg Gly Glu Ala Leu Gln Lys Ala Ile Glu Glu
35 40 45

Asp Lys Gln Arg Gly Leu Val Pro Val Phe Val Cys Ala Thr Leu Gly
50 55 60

Thr Thr Gly Val Cys Ala Phe Asp Cys Leu Ser Glu Leu Gly Pro Ile
65 70 75 80

Cys Ala Arg Glu Gly Leu Trp Leu His Ile Asp Ala Ala Tyr Ala Gly
85 90 95

Thr Ala Phe Leu Cys Pro Glu Phe Arg Gly Phe Leu Lys Gly Ile Glu
100 105 110

Tyr Ala Asp Ser Phe Thr Phe Asn Pro Ser Lys Trp Met Met Val His
115 120 125

Phe Asp Cys Thr Gly Phe Trp Val Lys Asp Lys Tyr Lys Leu Gln Gln
130 135 140

Thr Phe Ser Val Asn Pro Ile Tyr Leu Arg His Ala Asn Ser Gly Val
145 150 155 160

Ala Thr Asp Phe Met His Trp Gln Ile Pro Leu Ser Arg Arg Phe Arg
165 170 175

Ser Val Lys Leu Trp Phe Val Ile Arg Ser Phe Gly Val Lys Asn Leu
180 185 190

Gln Ala His Val Arg His Gly Thr Glu Met Ala Lys Tyr Phe Glu Ser
195 200 205

Leu Val Arg Asn Asp Pro Ser Phe Glu Ile Pro Ala Lys Arg His Leu
210 215 220

Gly Leu Val Val Phe Arg Leu Lys
225 230

<210> 7
<211> 232
<212> PRT
<213> Rattus rattus

<400> 7

Ala Arg Leu Val Ala Tyr Ala Ser Asp Gln Ala His Ser Ser Val Glu
1 5 10 15

Lys Ala Gly Leu Ile Ser Leu Val Lys Ile Lys Phe Leu Pro Val Asp
20 25 30

Asp Asn Phe Ser Leu Arg Gly Glu Ala Leu Gln Lys Ala Ile Glu Glu
35 40 45

Asp Lys Gln Gln Gly Leu Val Pro Val Phe Val Cys Ala Thr Leu Gly
50 55 60

Thr Thr Gly Val Cys Ala Phe Asp Lys Leu Ser Glu Leu Gly Pro Ile
65 70 75 80

Cys Ala Arg Glu Gly Leu Trp Leu His Val Asp Ala Ala Tyr Ala Gly
85 90 95

Thr Ala Phe Leu Arg Pro Glu Leu Arg Gly Phe Leu Lys Gly Ile Glu
100 105 110

Tyr Ala Asp Ser Phe Thr Phe Asn Pro Ser Lys Trp Met Met Val His
115 120 125

Phe Asp Cys Thr Gly Phe Trp Val Lys Asp Lys Tyr Lys Leu Gln Gln
130 135 140

Thr Phe Ser Val Asn Pro Ile Tyr Leu Arg His Ala Asn Ser Gly Val
145 150 155 160

Ala Thr Asp Phe Met His Trp Gln Ile Pro Leu Ser Arg Arg Phe Arg
165 170 175

Ser Ile Lys Leu Trp Phe Val Ile Arg Ser Phe Gly Val Lys Asn Leu
180 185 190

Gln Ala His Val Arg His Gly Thr Asp Met Ala Lys Tyr Phe Glu Ser
195 200 205

Leu Val Arg Ser Asp Pro Val Phe Glu Ile Pro Ala Glu Arg His Leu
210 215 220

Gly Leu Val Val Phe Arg Leu Lys
225 230

<210> 8
<211> 235
<212> PRT
<213> Rattus rattus

<400> 8

Glu Lys Leu Val Ala Tyr Thr Ser Asp Gln Ala His Ser Ser Val Glu
1 5 10 15

Arg Ala Gly Leu Ile Gly Gly Val Lys Ile Lys Ala Ile Pro Ser Asp
20 25 30

Gly Asn Tyr Ser Met Arg Ala Ala Ala Leu Arg Glu Ala Leu Glu Arg
35 40 45

Asp Lys Ala Ala Gly Leu Ile Pro Phe Phe Val Val Thr Leu Gly
50 55 60

Thr Thr Ser Cys Cys Ser Phe Asp Asn Leu Leu Glu Val Gly Pro Ile
65 70 75 80

Cys Asn Gln Glu Gly Val Trp Leu His Ile Asp Ala Ala Tyr Ala Gly
85 90 95

Ser Ala Phe Ile Cys Pro Glu Phe Arg Tyr Leu Leu Asn Gly Val Glu
100 105 110

Phe Ala Asp Ser Phe Asn Phe Asn Pro His Lys Trp Leu Leu Val Asn
115 120 125

Phe Asp Cys Ser Ala Met Trp Val Lys Lys Arg Thr Asp Leu Thr Glu
130 135 140

Ala Phe Asn Met Asp Pro Val Tyr Leu Arg His Ser His Gln Asp Ser
145 150 155 160

Gly Leu Ile Thr Asp Tyr Arg His Trp Gln Ile Pro Leu Gly Arg Arg
165 170 175

Phe Arg Ser Leu Lys Met Trp Phe Val Phe Arg Met Tyr Gly Val Lys
180 185 190

Gly Leu Gln Ala Tyr Ile Arg Lys His Val Lys Leu Ser His Glu Phe
195 200 205

Glu Ser Leu Val Arg Gln Asp Pro Arg Phe Glu Ile Cys Thr Glu Val
210 215 220

Ile Leu Gly Leu Val Cys Phe Phe Arg Leu Lys
225 230 235

<210> 9
<211> 243
<212> PRT
<213> Rattus rattus

<400> 9

Ala Ala Val Pro Arg Leu Ile Ala Phe Thr Ser Glu His Ser His Phe
1 5 10 15

Ser Leu Lys Lys Gly Ala Ala Ala Leu Gly Ile Gly Thr Asp Ser Val
20 25 30

Ile Leu Ile Lys Cys Asp Glu Arg Gly Lys Met Ile Pro Ser Asp Leu
35 40 45

Glu Arg Arg Ile Leu Glu Ala Lys Gln Lys Gly Phe Val Pro Phe Leu
50 55 60

Val Ser Ala Thr Ala Gly Thr Thr Val Tyr Gly Ala Phe Asp Pro Leu
65 70 75 80

Leu Ala Val Ala Asp Ile Cys Lys Lys Tyr Lys Ile Trp Met His Val
85 90 95

Asp Ala Ala Trp Gly Gly Gly Leu Leu Met Ser Arg Lys His Lys Trp
100 105 110

Lys Leu Ser Gly Val Glu Arg Ala Asn Ser Val Thr Trp Asn Pro His
 115 120 125

Lys Met Met Gly Val Pro Leu Gln Cys Ser Ala Leu Leu Val Arg Glu
 130 135 140

Glu Gly Leu Met Gln Ser Cys Asn Gln Met His Ala Ser Tyr Leu Phe
 145 150 155 160

Gln Gln Asp Lys His Tyr Asp Leu Ser Tyr Asp Thr Gly Asp Lys Ala
 165 170 175

Leu Gln Cys Gly Arg His Val Asp Val Phe Lys Leu Trp Leu Met Trp
 180 185 190

Arg Ala Lys Gly Thr Thr Gly Phe Glu Ala His Ile Asp Lys Cys Leu
 195 200 205

Glu Leu Ala Glu Tyr Leu Tyr Asn Ile Ile Lys Asn Arg Glu Gly Tyr
 210 215 220

Glu Met Val Phe Asp Gly Lys Pro Gln His Thr Asn Val Cys Phe Trp
 225 230 235 240

Tyr Val Pro

<210> 10

<211> 242

<212> PRT

<213> Drosophila melanogaster

<400> 10

Phe Asn Ala Lys Pro Leu Ile Ile Phe Thr Ser Glu Asp Ala His Tyr
 1 5 10 15

Ser Val Glu Lys Leu Ala Met Phe Met Gly Phe Gly Ser Asp His Val
 20 25 30

Arg Lys Ile Ala Thr Asn Glu Val Gly Lys Met Arg Leu Ser Asp Leu
 35 40 45

Glu Lys Gln Val Lys Leu Cys Leu Glu Asn Gly Trp Gln Pro Leu Met
 50 55 60

Val Ser Ala Thr Ala Gly Thr Thr Val Leu Gly Ala Phe Asp Asp Leu
 65 70 75 80

Ala Gly Ile Ser Glu Val Cys Lys Lys Tyr Asn Met Trp Met His Val
 85 90 95

Asp Ala Ala Trp Gly Gly Gly Ala Leu Met Ser Lys Lys Tyr Arg His
 100 105 110

Leu Leu Asn Gly Ile Glu Arg Ala Asp Ser Val Thr Trp Asn Pro His
 115 120 125

Lys Leu Leu Ala Ala Ser Gln Gln Cys Ser Thr Phe Leu Thr Arg His
130 135 140

Gln Gln Val Leu Ala Gln Cys His Ser Thr Asn Ala Thr Tyr Leu Phe
145 150 155 160

Gln Lys Asp Lys Phe Tyr Asp Thr Ser Phe Asp Thr Gly Asp Lys His
165 170 175

Ile Gln Cys Gly Arg Arg Ala Asp Val Phe Lys Phe Trp Phe Met Trp
180 185 190

Lys Ala Lys Gly Thr Gln Gly Leu Glu Ala His Val Glu Lys Val Phe
195 200 205

Arg Met Ala Glu Phe Phe Thr Ala Lys Val Arg Glu Arg Pro Gly Phe
210 215 220

Glu Leu Val Leu Glu Ser Pro Glu Cys Thr Asn Ile Ser Phe Trp Tyr
225 230 235 240

val Pro

<210> 11
<211> 241
<212> PRT
<213> Acinetobacter baumannii
<400> 11

Ala Glu Ala Met Lys Asn Val Lys Val Ile Cys Ser Glu Asn Ala His
1 5 10 15

Phe Ser Val Gln Lys Asn Met Ala Met Met Gly Met Gly Phe Gln Ser
20 25 30

Val Val Thr Val Pro Val Asn Glu Asn Ala Gln Met Asp Val Asp Ala
35 40 45

Leu Glu Lys Thr Met Ala His Leu Gln Ala Glu Gly Lys Val Val Ala
50 55 60

Cys Val Val Ala Thr Ala Gly Thr Thr Asp Ala Gly Ala Ile His Pro
65 70 75 80

Leu Lys Lys Ile Arg Glu Ile Thr Asn Lys Tyr Gly Ser Trp Met His
85 90 95

Ile Asp Ala Ala Trp Gly Gly Ala Leu Ile Leu Ser Asn Thr Tyr Arg
100 105 110

Ala Met Leu Asp Gly Ile Glu Leu Ser Asp Ser Ile Thr Leu Asp Phe
115 120 125

His Lys His Tyr Phe Gln Ser Ile Ser Cys Gly Ala Phe Leu Leu Lys
130 135 140

Asp Glu Ala Asn Tyr Arg Phe Met His Tyr Glu Ala Glu Tyr Leu Asn
145 150 155 160

Ser Ala Tyr Asp Glu Glu His Gly Val Pro Asn Leu Val Ser Lys Ser
165 170 175

Leu Gln Thr Thr Arg Arg Phe Asp Ala Leu Lys Leu Trp Met Thr Ile
180 185 190

Glu Ser Leu Gly Glu Glu Leu Tyr Gly Ser Met Ile Asp His Gly Val
195 200 205

Lys Leu Thr Arg Glu Val Ala Asp Tyr Ile Lys Ala Thr Glu Gly Leu
210 215 220

Glu Leu Leu Val Glu Pro Gln Phe Ala Ser Val Leu Phe Arg Val Val
225 230 235 240

Pro

<210> 12
<211> 181
<212> PRT
<213> homology sequence

<400> 12

Met Asp Val Ala Phe Leu Glu Lys Leu Ile Lys Asp Asp Ile Glu Arg
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20 25 30

Gly His Thr Asp Lys Ile Gly Arg Leu Lys Glu Leu Cys Glu Gln Tyr
35 40 45

Gly Ile Trp Leu His Val Glu Gly Val Asn Leu Ala Thr Leu Ala Leu
50 55 60

Gly Tyr Val Ser Ser Ser Val Leu Ala Ala Ala Lys Cys Asp Ser Met
65 70 75 80

Thr Met Thr Pro Gly Pro Trp Leu Gly Leu Pro Ala Val Pro Ala Val
85 90 95

Thr Leu Tyr Lys His Asp Asp Pro Ala Leu Thr Leu Val Ala Gly Leu
100 105 110

Thr Ser Asn Lys Pro Thr Asp Lys Leu Arg Ala Leu Pro Leu Trp Leu
115 120 125

Ser Leu Gln Tyr Leu Gly Leu Asp Gly Phe Val Glu Arg Ile Lys His
130 135 140

Ala Cys Gln Leu Ser Gln Arg Leu Gln Glu Ser Leu Lys Lys Val Asn
145 150 155 160

Tyr Ile Lys Ile Leu Val Glu Asp Glu Leu Ser Ser Pro Val Val Val
 165 170 175

Phe Arg Phe Phe Gln
 180

<210> 13
 <211> 19
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 13
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19

<210> 14
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 14
 taagtcttca atgtgactga ct

22

<210> 15
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 15
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22

<210> 16
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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 16
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20

<210> 17
 <211> 21
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer

<400> 17
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21

<210> 18
 <211> 30
 <212> DNA
 <213> Artificial Sequence

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<400>	19	30
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	ggatactttc agataccacc	
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